Volume 18 Study G-I-C

STATE OF ALASKA

Jay S. *Hammond, Governor*

Annual Performance Report for

INVENTORY AND CATALOGING OF KENAI PENINSULA, AND COOK INLET DRAINAGES AND FISH STOCKS

by

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RESEARCH PROJECT SEGMENT

State: ALASKA **Name:** **Sport Fish Investigations of Alaska**

Project No.: F-9-9

Study No.: G-I Study Title: INVENTORY AND CATALOGING

Job No.: G-I-C **Job Title:** Inventory and Cataloging of Kenai Peninsula, and Cook Inlet Drainages and Fish Stocks.

Period Covered: July 1, 1976 - June 30, 1977.

ABSTRACT

Surveys performed on seven Kenai Peninsula lakes to determine the probable range expansion of illegally planted northern pike, Esox lucius (Linnaeus), are discussed.

Relative growth and survival rates as determined by fall gill netting are presented for rainbow trout, Salmo gairdneri Richardson, and coho salmon, Oncorhynchus kisutch (Walbaum), stocked in area lakes. Pertinent historical data regarding stocking size, time, densities and catch rates are examined for various managed-lakes;

An experimental rainbow trout egg take on the Swanson River yielded 97,000 eggs from 135 females.

Creel census activities conducted on 50.9 miles of the Kenai River indicated an estimated harvest of 13,808 coho salmon, 719 sockeye salmon, O. nerka (Walbaum), 21,443 pink salmon, O. Gorbuscha (Walbaum), 1,797 rainbow trout, and 4,957 Dolly Varden, Salvelinus malma (Walbaum), from 80,506 man-days of effort.

Limited observations of a spring rainbow trout fishery on the Kenai River near the inlet to Skilak Lake are discussed.

BACKGROUND

Lake Surveys

During the late summer of 1976 a report was received that a northern pike, Esox lucius Linnaeus, was cuaght in one of the Mackey Lakes. In order to confirm the presence of this species, which is not indigenous

to Kenai Peninsula waters, seven of the lakes, all part of the Soldotna Creek drainage, were surveyed.

Stocked Lake Evaluation

Since statehood an ongoing program of lake rehabilitation and enhancement has been directed at roadside waters. Survey data have been analyzed with regard to need for additional angling opportunity; potential of a given water to sustain fish populations; status, condition and composition of existing populations; and requirements for rehabilitation or enhancement. All lakes thus far stocked have been landlocked, with the exception of three planted with rainbow trout, Salmo gairdneri Richardson, and seven planted with Arctic grayling, Thymallus arcticus (Pallas).

Historically, stocked species have been limited to rainbow trout, coho salmon, Oncorhynchus kisutch (Walbaum), sockeye salmon, O. nerka (Walbaum), and Arctic grayling.

Fish populations have been sampled each fall and data gathered have been used to determine survival rates, growth rates and future stocking densities.

Swanson River Egg Take

The egg take conducted in 1976 terminated a three year program (Hammarstrom 1975) initiated to establish native Alaskan rainbow trout brood stock. Since statehood, rainbow trout for lake stockings have been reared in Alaskan hatcheries from eggs obtained from brood stocks of federal hatcheries, primarily Ennis, Montana, and Winthrop, Washington.

In 1974 a Department of Fish and Game directive discouraged the importation of eggs for stocking purposes because of disease problems encountered in hatcheries in the Continental United States. The Swanson River was selected as one of the possible source of native donor stock.

The first egg take in 1974 yielded 20,700 eggs from 38 females and the 1975 egg take, 29,700 eggs from 52 females. All eggs have been incubated at Fire Lake Hatchery near Anchorage.

Kenai River Creel Census

A creel census was initiated in 1974 with chinook salmon, O. tshawytscha (Walbaum), as the target species. Since then it has been expanded to include both early and late run coho salmon. During the chinook salmon fishery on the river, most fishing is done from a boat; but after the chinook salmon season closes boats are anchored and the fishery, in essence, becomes a shore fishery. Depending on weather conditions, angling effort continues through September.

It has been known for some time that a small fishery takes place in the spring on the Kenai River near the Skilak Lake inlet. Because it is a considerable walk, 4.02 km (2.5 miles) by trail, and limited observations have indicated light effort, the effect was considered negigible.

Reports were received during the fall of 1975 stating that effort had increased substantially and harvest of rainbow trout was significant. In order to establish some baseline information, numerous observations and interviews were conducted in 1976.

RECOMMENDATIONS

1. Transplant Arctic grayling from Crescent Lake to Seldovia Lake in an attempt to estabish a self-sustaining population.

2. Using electrofishing gear, capture and transplant adult lake trout from Skilak Lake to Upper Summit Lake in an attempt to establish a self-sustaining population.

3. Initiate a creel census on the Anchor River to determine angler effort and harvest of coho salmon, steelhead trout and Dolly Varden.

OEUECTIVES

1. To determine the environmental characteristics of the existing recreational fishery waters of the job area and to obtain estimates of existing and/or potential angler use and sport fish harvest.

2. To evalutate application of fishery restoration measures and availability of sport fish egg source.

3. To assist as required in the investigation of public access status to the area's fishing waters and to make specific recommendations for segregation of public fishing access site.

4. To investigate, evaluate and develop plans for the enhancement of anadromous and resident fish stocks.

5. To provide recommendations for the management of sport fish resources in these waters and direct the course of future studies.

TECHNIQUES USED

Lake Surveys

Lakes were surveyed according to prescribed methods (Lake and Stream Manual, 1971). A Hach A1-36-WR Kit was used to gather chemical data, a Ross P-100 depth finder was utilized to measure depths, a Raytheon Recording Fathometer was used to record bottom contours and a Hach Model 2510 conductivity meter was used to measure conductivity. Fish populations were sampled with mono-filament gill nets, (125 feet by 6 feet) containing five mesh sizes ranging from 3/4 inch to 2 inch bar measure. Nets were fished approximately 24 hours.

Stocked Lake Evaluation

Stocked lakes were sampled by methods described by Engel (1973) and by use of an electric shocking boat. Fork length was measured to the nearest millimeter, while weights were measured to the nearest 4.6 gm. Age of the samples were determined by length frequency and scales that were pressed into cellulose acetate and read by a Bruning 200 microfiche reader.

Swanson River Egg Take

Collection of adult rainbow trout began immediately after the fish were observed on the spawning grounds. The most efficient capture method was rod and reel using barbless flies or small spinners. Captured fish were sorted into pens: unripe females, ripe females and males.

Prior to spawning, females were anesthetized with MS-222 (tricane methane-sulfonate). Anesthetized fish were held in a small pen in the stream until recovery of their motor reflexes was observed. They were then released. Eggs were fertilized, water hardened, packed in plastic containers and flown to Fire Lake Hatchery via Fish and Wildlife Service aircraft.

The females not used in the egg take were found to be either spent or unripe. All fish captured were tagged by Fish and Wildlife Service personnel. Tags used were numbered Floy "Spagetti" tags. All fish used in fertilization were released the same day. On the last day all remaining fish were tagged and released.

Kenai River Creel Census

For census purposes, the Kenai River is divided into three sections: upstream, Skilak Lake to Naptowne Rapids 16.9 km (10.5 miles), midstream, Naptowne Rapids to Soldotna Bridge 31.2 km (19.4 miles) and downstream, Soldotna Bridge to Beaver Creek 18.2 km (11.3 miles). Both upstream and downstream sections are censused while the mid-stream section is projected on the basis of relative effort determined from aerial angler counts of the entire river.

Creel census design and techniques are the same as reported by Hammarstrom 1977. The census commenced June 7 and terminated September 30. Prior to July 31, the target species is chinook salmon. Data regarding chinook salmon are presented in Hammarstrom 1977. Also prior to July 31, very few fish of other species are harvested. The "fishing day" is reduced from 20 hours to 16 hours in August and to 12 hours in September due to decreased daylight.

Skilak Lake Fishery

In late April and early May seven individual trips were made into the Skilak Lake inlet. Cars at the two access points were counted as well as anglers on the stream. Interviews were conducted concerning harvest and hours fished. No formal estimates were made. The survey was conducted to form a general evaluation of the fishery.

FINDINGS

Lake Surveys

Partial surveys were conducted on seven lakes in the Soldotna Creek Drainage to determine the presence of northern pike. The following lakes were involved: East Mackey, West Mackey, Derks, Sevena (Soldotna), Denise, Tree and Cisca. The lakes ranged in size from 13.4 hectares (33 acres) to 65.2 hectares (161 acres).

Northern pike were either captured or observed in three of the lakes; East Mackey, Derks and Sevena. Although none were captured, they were also suspected of being in West Mackey because a small stream connects it to East Mackey Lake. All lakes sampled contained rainbow trout and threespine stickleback, Gasterosteus aculeatus (Linnaeus). Table 1 summarizes sampling data from the various lakes.

Four lakes were being considered for rehabilitation and thus volumetric surveys were completed. Physical descriptions are presented in Table 2.

Most of the northern pike were captured from East Mackey Lake (17). All were mature females with developing eggs. It is speculated that these fish were illegally planted as juveniles during the summer of 1973. It is further speculated that the fish had not spawned but will probably spawn in the spring of 1977. This is based on three factors: size of fish captured, condition of developing eggs, and the fact that no juveniles were captured or observed. One male and one female, both of which were mature, were captured in Sevena Lake. The northern pike observed in Derks Lakes appeared to be approximately the size of the fish captured in the other two lakes and the assumption was made that fish in this lake were also mature.

Stocked Lake Evaluation

Sampling was conducted on 13 area lakes with variable mesh gill nets. All lakes planted with rainbow trout, except Rainbow (Fetus) Lake have been treated chemically with rotenone to eliminate competing species, usually threespined stickleback. Pertinent data concerning six lakes stocked with rainbow trout are presented in Table 3 and 4.

Two of the seven lakes (Arc and Centennial) planted with coho salmon have been previously treated chemically with rotenone. Pertinent historical data and sampling summary are presented in Tables 5 and 6.

Centennial Lake was rehabilitated in 1974 with emulsified rotenone. Stocking in 1975 was relatively heavy at 575 fish per surface acre. The catch per hour in 1976 (12.04) is the highest reported of all stocked lakes on the Kenai Peninsula. The reason for the excellent survival and normal growth rate is suspected to be lack of competition from threespine stickleback.

Swanson River Egg Take

For the third consecutive year, eggs have been taken from a wild rainbow trout spawning population in the Swanson River in an effort to establish

Table 1. Sampling Summary from Soldotna Creek Drainage, 1976.

Lake	Species	Number	Catch/ Hour	Fork Length, Range mm	Mean Fork Length	Length S.D.**	Mean Weight Grams	Mean Weight Lbs.
West Mackeye	RB	21	0.29	124-450	341	84.2	571.5	1.26
East Mackeye	RB	15	0.12	238-430	356	55.7	580.6	1.28
	NP	17	0.14	420-625	459	48.4	843.7	1.86
Sevena (Soldotna)	RB	161	2.01	102-458	303	72.3	381.0	0.84
	NP	2	0.02	425-470	448	31.8	757.5	1.67
Tree	RB	68	0.16	168-485	321	99.8	553.4	1.22
Cisca	RB	6	0.01	417-565	478	61.8	1478.7	3.26
Denise	RB	28	0.17	188-451	352	81.7	598.7	1.30
	DV	4	0.02	218-400	308	86.0	335.7	0.74

(Derks Lake not sampled)

* RB - rainbow trout, NP - northern pike, DV - Dolly Varden
** Standard Deviation

Table 2. Summary of Physical Characteristics of Four Lakes in Soldotna Creek Drainage.

Lake	Surface Area (Acres)	Volume (Acre-Feet)	Maximum Depth (Feet)	Average Depth (Feet)
West Mackey	161	1,065	18	6.6
East Mackey	94	787	24	8.4
Sevena	65	595	15	9.0
Derks	33	379	17	11.4

Table 3. Rehabilitation Summary of Kenai Peninsula Lakes Stocked with Rainbow Trout and Sampled with Gill Nets, 1976.

Lake	Date Rotenone	Date Stocked	Origin	Fish/kg	Fish/lb.	Fish/Hectare	Fish/acre	Total Stocked
Cabin	6/18/70	9/11/70	Winthrop, WA.	363	165	1,038	420	24,000
		6/ 4/71	Ennis, MT.	251	114	618	250	14,300
		6/20/73	Ennis, MT.	284	129	563	228	13,000
		7/16/75	Ennis, MT.	255	166	494	200	11,400
Jerome	6/28/68	8/27/68	Winthrop, WA.	462	210	1,297	525	8,550
		9/ 5/69	Winthrop, WA.	290	132	544	220	3,600
		9/11/70	Winthrop, WA.	233	106	494	200	3,200
		6/11/71	Ennis, MT.	348	158	544	220	3,600
		8/ 3/72	Winthrop, WA.	988	449	544	220	3,600
		6/20/73	Ennis, MT.	284	129	544	220	3,600
		7/19/74	Winthrop, WA.	750	341	605	245	4,000
		7/14/76	Ship Creek, AK.	524	238	605	245	4,000
Johnson	9/11/72	6/20/73	Ennis, MT.	284	129	633	256	21,800
		7/16/75	Ennis, MT.	255	116	494	200	17,000
Longmare	9/ 7/72	6/20/73	Ennis, MT.	284	129	1,161	470	81,100
		8/24/73	Ennis, MT.	136	62	667	270	47,000
		7/17/74	Winthrop, WA.	750	341	494	200	34,400
		8/ 9/76	Ship Creek, AK.	431	196	507	205	35,300
Rainbow (Fetus)		6/28/71	Oregon	6,565	2,984	1,483	600	9,000
		7/ 3/74	Winthrop, WA.	1,602	728	1,253	507	7,600
Tirmore (Short Pine)	9/ 8/72	7/26/73	Ennis, MT.	246	112	371	150	7,800
		7/26/73	Winthrop, WA.	275	125	371	150	7,800
		7/16/75	Ennis, MT.	365	166	494	200	10,400

Table 4. Sampling Summary of Kenai Peninsula Lakes Stocked with Rainbow Trout, 1976.

Lake	Date Sampled	Method	Species*	Sample Number	Catch Per Hour	Length Range mm	Mean Length mm	Length Range inches	Mean Length inches	Length S. D. **	Year Planted
Cabin	9/21/76	Gill Net	RB	2	0.04	413-445	429.0	16-18	16.8	22.6	1973
			RB	7	0.15	223-310	271.0	9-12	10.6	31.9	1975
Jerome	9/ 9/76	Gill Net	RB	2	0.04	450-481	465.5	18-19	18.3	21.9	1974
			RB	64	1.35	94-165	121.1	4-7	4.8	13.0	1976
			DV	15	0.32	173-457	320.4	7-18	12.6	94.1	***
Johnson	9/24/76	Gill Net	RB	10	0.23	398-463	428.9	16-18	16.9	18.3	1973
			RB	7	0.16	316-366	374.9	12-14	14.8	21.9	1975
Longmare	9/28/76	Gill Net	RB	39	1.10	293-371	335.5	12-15	13.2	19.5	1974
			RB	6	0.13	97-108	100.8	4	5.0	4.4	1976
Rainbow (Fetus)			RB	4	0.17	324-362	227.0	13-14	8.9	17.2	1974
Tirmore (Short Pine)	9/22/76	Gill Net	RB	11	0.25	385-565	495.2	15-22	19.5	50.0	1973
			RB	22	0.60	227-342	310.8	9-13	12.2	26.8	1975

* RB - rainbow trout, DV - Dolly Varden
** S.D. - Standard Deviation
*** Fish introduced by private parties illegally

Table 5. Summary of Kenai Peninsula Stocked with Coho Salmon and Sampled by Gill Nets, 1976.

Lake	Date Stocked	Origin	Fish/Kg.	Fish/lb.	Fish/Hectare	Fish/Acre	Total Stocked
Arc	7/19/74	Seward	757	344	642	260	4,100
	6/02/76	Blind Slough	656	298	630	255	4,000
Bernice	7/26/73	Kodiak	563	256	247	100	13,400
	7/19/74	Seward	757	344	247	100	13,400
Centennial	7/16/75	Seward	882	401	1,421	575	14,400
Engineer	7/16/75	Seward	882	401	371	150	34,400
Portage	7/26/73	Kodiak	563	256	741	300	8,300
	7/16/75	Seward	882	401	618	250	6,900
Rock	7/26/73	Kodiak	563	256	519	210	2,000
	7/19/74	Seward	757	344	395	160	1,500
	6/02/76	Blind Slough	656	298	531	215	2,000
Sunken Island	6/28/71	Seward	860	391	494	200	28,000
	7/26/73	Kodiak	563	256	494	200	28,000
	7/16/75	Seward	882	401	247	100	14,000
Upper Jean	7/26/73	Kodiak	563	256	618	250	11,500
	7/16/75	Seward	882	401	618	250	

Table 6. Sampling Summary of Kenai Peninsula Lakes Stocked with Coho Salmon, 1976.

Lake	Date Sampled	Method	Species*	Sample Number	Catch Per Hour	Length Range (mm)	Length Range inches	Mean Length (mm)	Mean Length inches	Length S.D.**	Year Planted
Arc	9/27/76	Gill Net	SS	9	0.43	205-230	8-9	217.6	8.6	8.2	1974
			SS	61	3.96	103-130	4-5	116.9	4.6	19.8	1976
Centennial	9/23/76	Gill Net	SS	554	12.04	162-230	6-9	185.6	7.3	14.1	1975
Engineer	9/15/76	Gill Net	SS	165	3.78	107-445	4-18	218.9	8.6	60.4	1975***
			DV	1	0.01	445	18	445	17.5	0	****
Portage	9/30/76	Gill Net	SS	102	2.28	110-234	4-9	156.1	6.1	19.2	1975
Rock	9/14/76	Gill Net	SS	128	5.45	120-203	5-8	146.4	5.7	14.8	1976
Sunken Island	10/01/76	Gill Net	SS	4	0.08	345-373	14-15	359.3	14.1	13.0	1973
			SS	142	2.88	160-263	6-10	193.0	7.6	20.6	1975
Upper Jean	9/17/76	Gill Net	SS	5	0.12	262-423	10-17	349.4	13.8	61.1	1973
			SS	309	7.14	120-250	5-10	176.6	6.9	16.5	1975

* SS - coho salmon, DV - Dolly Varden
** S.D. - Standard Deviation
*** Fish stocked with some natural production present. Outlet stream present only on extreme high water years.
**** Probably entered from Hidden Lake at time of high water.

a native brood stock. This has been a cooperative project with the Fish and Wildlife service who have provided personnel for a tagging study and aircraft support.

Spawning adults are concentrated at two bridge crossings located 34.7 km (22.2 miles) and 41.4 km (25.7 miles) from the stream's confluence with Cook Inlet. Gravel deposited on the stream bottom in conjunction with construction of the bridges has served as an enhancement measure. Logistically, these sites greatly facilitate the egg take operation.

Adults were observed at the collection sites immediately after ice-out in early May. Collection began on May 10 and was conducted each day until May 26. Females were spawned May 20 and 26 with water temperatures being 6.1°C (42°F).

Capture efforts yielded a total of 362 fish comprised of 185 females and 177 males. Eggs taken from 135 females totaled 97,000 or 719 per female. This is 148 eggs per female more than in 1975 (Hammarstrom 1976). The remaining females were found to be unripe or spent.

Age compositions for spawned females were determined from 121 readable scales. The spawning population was comprised of five age classes, 3.0 to 7.0 (see Table 7) with age class 5.0 contributing the majority, 47.9%. This compares to 37.2% in 1975 (Hammarstrom 1976). Sufficient scale samples to represent the age composition were not collected from males.

All fish captured were tagged. Immediately after the first egg take (May 20) many tagged fish were observed among the untagged population on the spawning grounds. The following day very few tags were observed or captured. Visual estimates indicated similar numbers of fish on the spawning grounds at any given time suggesting a reserve population waiting for fish to move off the redds. The population on the spawning area at any one time seems to be density dependent.

Kenai River Creel Census

Although the target species in the Kenai River prior to July 31 is chinook salmon, O. tshawytscha (Walbaum), other species are harvested. In 1976, in addition to 6,031 chinook salmon over 20 inches in length, the following were harvested in June and July: 495 sockeye salmon, 808 coho salmon, 873 pink salmon, 1,429 rainbow trout, and 3,017 Dolly Varden.

After July 31, effort is directed towards coho salmon, although on even years, a large harvest of pink salmon is also noted. Harvest between August 1 and September 30 was estimated as follows: 224 sockeye salmon, 13,000 coho salmon, 20,570 pink salmon, 368 rainbow trout, and 1,940 Dolly Varden. Table 8 summarized harvest by species excluding chinook salmon.

Angler effort on all species during 1976 was estimated at 80,506 man-days with 36,046 man-days occurring after July 31.

Table 7. Age and Length Data of Mature Female Rainbow Trout Collected During Swanson River Egg Take, 1976.

	Age Class					
	3.0	4.0	5.0	6.0	7.0	Total
Number	3	38	58	21	1	121
Range mm	235-360	230-410	270-414	306-522	445	230-522
Mean mm	315	317.4	341.4	398.6	445	344.6
Length S.D.*	69.5	48.5	36.3	72.9	0	56.8
Percent of Total Sample	2.5	31.4	47.9	17.4	0.8	100.0

* S.D. - Standard Deviation

Table 8. Summary of Angler Effort and Harvest by Species (Chinook Salmon Excluded), Kenai River, 1976.

Month	Effort (Man-Days)	Sockeye Salmon	Coho Salmon	Pink Salmon	Rainbow Trout	Dolly Varden	Total
			Upstream Section				
June and July	9,885	372	114	56	1,045	762	2,349
August	6,119	190	1,456	2,347	250	585	4,828
September	4,004	0	1,251	514	0	0	1,765
Total	20,008	562	2,821	2,917	1,295	1,347	8,942
			Midstream Section				
June and July	6,682	75	122	131	169	456	953
August	3,935	34	1,154	2,967	62	293	4,510
September	1,640	0	810	141	0	0	951
Total	12,257	109	2,086	3,239	231	749	6,414
			Downstream Section				
June and July	27,893	48	573	686	215	1,799	3,321
August	15,118	0	5,025	14,322	56	1,062	20,465
September	5,230	0	3,303	279	0	0	3,582
Total	48,241	48	8,901	15,287	271	2,861	27,359
			Total				
June and July	44,460	495	809	873	1,429	3,017	6,623
August	25,172	224	7,635	19,636	368	1,940	29,803
September	10,874	0	5,364	934	0	0	6,298
Total	80,506	719	13,808	21,443	1,797	4,957	42,715

Harvest and effort estimates for August and September were based on 6,683 angler interviews and 140 instantaneous boat counts. Creel checked fish totaled 4,075. This represents an estimated sample size of 18.5% and 11.3% for effort and harvest, respectively.

The coho salmon migration into the Kenai River is comprised of two distinct runs; the early run peaking the first part of August and the late run peaking in mid-September (Figure 1). The early run receives extensive pressure from both sport and commercial interest while the late run receives substantially less commercial effort and slightly less sport effort depending on the weather. Otherwise sport fishing effort remains relatively constant.

It is theorized that the commercial set net areas of district 244-20, 224-30 and 244-40 harvest predominately coho salmon of Kenai River origin. During 1976 the commercial coho salmon harvest from these areas was 42,319 from the early run and 12,261 from the late run (August 16 being used as the separation date). The sport harvest of coho salmon from the Kenai River totaled 8,010 and 5,798 from the early and late run, respectively.

There is also a size differential between the two runs. Early run fish creel checked (n=197) exhibited a mean weight of 7.93 pounds (3.60 Kg) while late run fish (n=219) exhibited a mean weight of 10.24 pounds (4.64 Kg).

Pink salmon enter the river in late July and peak in mid-August. Spawning is completed by late September. The 1976 return to the Kenai River was quite large, as the large sport harvest indicated.

The harvest of rainbow trout and Dolly Varden has declined from 1975. The reason for the decline can probably be explained by the fact that fishing for the salmon species was so good, effort was not directed towards the trout and char.

Skilak Lake Fishery:

Between April 25 and May 16 seven trips were made into the inlet of Skilak Lake, all on weekends. The purpose of these trips was to gain a general impression of the extent of harvest and effort on rainbow trout in this area during the spring.

Cars were enumerated at each of two parking facilities at the head of the trails. Counts averaged 3.5 cars per parking area per count. Counts made over the section of stream easily accessible from the trails averaged 9.0 anglers per count.

During interviews 6 rainbow trout, 39 Dolly Varden and 1 lake trout, Savelinus namaycush (Walbaum), were reported for 164.5 man-hours of fishing resulting in the following catch per hour: 0.036 rainbow trout, 0.237 Dolly Varden, and 0.006 lake trout.

From the data gathered, it is surmised that neither the harvest nor effort is great enough to warrant a sophisticated monitoring program.

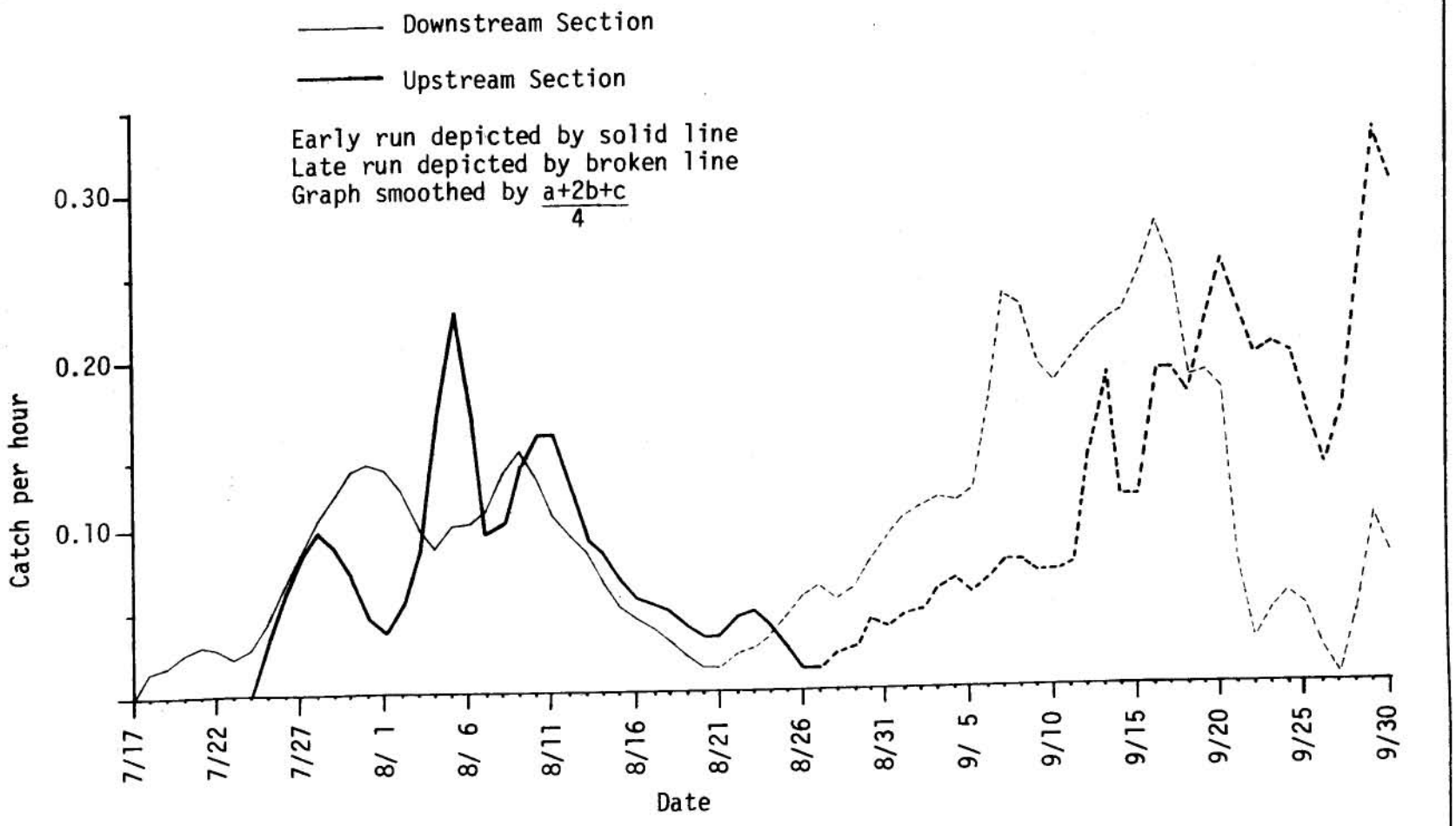

Figure 1. Catch Per Hour by Date for Kenai River Sport Caught Coho Salmon, 1976.

However, periodic spot checks should be made to detect any substantial change in the fishery.

DISCUSSION

Lake Surveys:

The introduction of northern pike to the waters of the Kenai Peninsula could have damaging effects since they are not indigenous to this area.

Initial plans were to attempt to eradicate the fish with rotenone. This would also eliminate all other species. Rainbow trout were to be captured in Sevena Lake, transported to and held at Fire Lake Hatchery until ripe and spawned. The resultant progeny would then be stocked into the lakes after detoxification.

Materials and personnel were ready when the lakes froze in October postponing the operation until spring. Since October, unconfirmed reports of northern pike being captured in the Kenai River have been heard. With this in mind and also the fact that a complete kill may not have been achieved stocking would result in more harm than benefit. The problem is being reassessed as this report is being written.

Lake Stocking Evaluation:

Probably the most significant fact determined by this year's program is the survival of coho salmon in a rehabilitated lake. With the elimination of threespine stickleback, catch per net hour on age 1.0 fish increased from a mean of 1.15 to 12.04. Similar results have been experienced in Arc Lake but not to the same extent.

Stocking densities were increased from 315 per surface acre to 575 per surface acre, an 82.5% increase. Survival increased by 946.9%. Inversely, growth was decreased from a mean of 247 mm to 185 mm, a 25.1% reduction.

The results of work done on Centennial Lake to date suggest a stocking density of about 400 fish per surface acre (988 hectare) at approximately 400/lb (880 kg). should be tried in 1977, the next scheduled plant.

Swanson River Egg Take:

It was noticed that rainbow trout appeared on the spawning beds within a day or two after the ice went out, suggesting fish could have been captured earlier than had been reported in 1974 and 1975.

Capturing with sport tackle and barbless hooks has proven more efficient and less harmful than with either electricity or nets.

The higher egg-per-female ratio noted in 1976 appears to be due to the fact that more large females were captured during the early days of the egg take. This seems to indicate that larger fish move onto the spawning grounds first with smaller fish following. The fact that egg takes were scheduled later in previous years would account for the smaller fish being captured.

Kenai River Creel Census:

The 1976 creel census established one distinct fact: two runs of coho salmon enter the system. Both timing data and size differential substantiate this point.

Also, effort does not decrease substantially after the chinook salmon season closes; it is merely directed toward other species, primarily coho and pink salmon. On even years, pink salmon will probably make the largest contribution to the creel. Depending on the weather, substantial effort on coho salmon, especially in the upper section may extend into October. Observations in 1976 indicated anglers still present in mid-October.

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